

DESIGNING CRIME PREVENTION – A REVIEW OF METHODS

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ABSTRACT

The Designing Out Crime research centre (DOC) has now operated for almost 5 years. In this time the centre and its staff and students have worked on real life crime problems, using and developing ways of working within a design process.

DOC is a multi-discipline centre and draws on the tools and methods of these disciplines. Recently DOC undertook a stock-take of the methods it uses within a frame creation process. This stock-take was then used to develop DOC method cards, in reference to the IDEO method cards of 2002.

Situated within the frame creation process this paper explores 20 methods that were used in a case study that has gone from complex problem, to piloted solutions in the lifetime of DOC.

Keywords: design methods, design process, design learning, frame creation, design and crime

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1 INTRODUCTION

Design has been shifting in to new territory. Not least through the design thinking movement as characterized by Nussbaum (2007) and Brown (2009). This shift is evidenced by the growing number of designers embedding in corporations in ‘customer experience’ teams as well as the increasing market for designers working with government. At the same time as this boon has occurred, there has been a growing call for a paradigm shift in design research with researchers urged to reengage with practitioners to co-create expertise and practices (Dorst 2008).

This paper focuses on one example of how a university has formed a collaboration with a government department to bring a design approach to the problems it has struggled to address. The paper outlines through a case study how design process was used to shift an old problem, and also shares some practices that were created in the process of the project.

The Designing Out Crime research centre (DOC) is a partnership in Australia between the New South Wales Government’s Department of Attorney General and Justice, and the University of Technology, Sydney (UTS). DOC is tasked with bringing design practice in to the crime prevention field in NSW. Academics in the field of criminology have long recognized that design outcomes such as environments, buildings, and products can have elements that attract or enable crime, and have written extensively on the topic (see for example Clarke 2000, Newman 1972, Jeffery 1971, Brantingham & Brantingham 1981, Felson 1987, Eklom 2005, Cozens et al 2005). However, the academic exploration of design practice has arguably not been taken on board by criminology or crime prevention practice with as much enthusiasm as the reflections on design outcomes.

DOC argues that design can be used as a way of exploring the complexity of crime situations and that designers generate frames through which new solutions are generated (Dorst and Tomkin 2011). The Design Against Crime Research Centre at Central Saint Martins College of Art and Design, University of the Arts London have, since the 1990s, contributed significantly to the understanding of how design and designers can contribute to the crime prevention sector (see www.designagainstcrime.com for examples). The work of DOC and the Designing Out Crime research centre at the University of Technology Eindhoven have also added to this canon of work and sought to define their own approaches, methods and strategies, reflecting on practice and the academic literature (see for example, Dorst and Tomkin 2011, Camacho Duarte et al 2012, Lulham et al 2012 and see www.designingoutcrime.com and www.designingoutcrime.nl for project descriptions).

These ‘design for crime prevention’ approaches (Asquith et al 2013) are making headway. A recent conference hosted by DOC – the Design + Crime Conference 2012 – attracted an international audience comprising academics and practitioners from diverse backgrounds to discuss this topic. However, while there are changes occurring in criminology, the word ‘design’ has largely been invoked as an **outcome** rather than a **practice** that leads to an outcome and is pigeonholed in to matters to do with products and the built environment. The enquiry and critique of design in crime prevention are largely focused on the outcomes and outputs of these processes, or at the most the components of the outcomes (for example Clarke 2000). This approach is dangerous as it can lead to cookbook-style practice, where only things that have already been shown to ‘work’ are implemented (Eklom 2012). It ignores the likely differences in context and oversimplifies the process of developing effective ways to achieve the required outcomes.

After nearly five years of operation DOC has carried out numerous projects and built many partnerships. The process of mapping methods and practices used in past projects, and the methods and practices that the current team use was undertaken for two key reasons: to provide a mechanism for better explaining and engaging clients and partners who are not used to working with design processes; and to provide the opportunity for academic reflection and enquiry on the tools and strategies used by DOC designers.

2 CONTEXT

The Designing Out Crime research centre at UTS is a multidisciplinary team comprising 12 staff and a growing number of post-graduate research students. After nearly five years of operation, DOC took stock of the methods and tools that it uses and in reference to the IDEO method cards (IDEO 2003), developed a set of DOC method cards.



Figure 1 - DOC Method Cards

The DOC designers work within a practice framework of six key activities:

Research > Initiation > Frame Creation > Design Exploration > Handover > Evaluation
(Dorst, Tomkin, 2011)

Each of these activities is made up of processes, tools and methods. The key stage in this framework is frame creation (for a more detailed exploration of frame creation see Dorst, 2013). The DOC designers have found that a fruitful frame can only really be generated after the completion of several steps, or stages of understanding.

Good frames are not easily achieved, but when they are they provide a platform for design exploration (Lawson 2009). At DOC the designers and researchers often complete the first four stages over a period of 3-6 months. This work is then used as the starting point for two distinct practice methods 'theme analysis' and then 'frame creation'. The resultant frame(s) are then used as the briefing for undergraduate students to conduct design explorations through visualization and prototyping. Partners or client organisations then receive the results of this process in a formal handover with evaluation taking place upon implementation. For more information on projects see www.designingoutcrime.com and www.designingoutcrime.nl.

This practice framework is made up of distinct methods. Each DOC method card fits within one or more steps of the practice framework. Each step is achieved through the application of one or more of the methods. The stock-take elicited a final list of 36 distinct methods that are commonly used by the DOC team. The method cards are used by DOC when formulating and planning a project with a partner organization, and are designed to be playful and flexible. In some ways the cards fulfill the role of educating the client about the sometimes abstract and bewildering methods used by designers. Using the cards is also a way of engaging the client in the design process and setting up the designer/client relationship as a collaborative affair, as distinct from that of the 'designer-as-technician' arrangement (Paton & Dorst, 2010).

The method name, a brief description and a precedent project where the tool has been used are on the cards. Guidance on when (in the project) to use the method, and one or more in-house experts who have either brought the tool to DOC, or who have used the tool in DOC projects are also listed. The names of past projects in which the tool has been successfully used are also displayed on the card, so that DOC designers can quickly find examples to guide them.

3 THE RESEARCH PROJECT

The DOC method cards were exhibited at DAB LAB, a public gallery attached to UTS, in an exhibition coinciding with the Design + Crime Conference hosted by DOC in December 2012. Applied to a case study the exhibition illustrated how the methods fit within the DOC design practice framework. The exhibition also asked for attendees to record their name, occupation, and their favorite design/research method. The results of this research are included in this paper.

The *What, Why, How, When* exhibition ran at DAB LAB in December 2012. A case study was illustrated by placing the cards on the walls with contextual notes and images providing a narrative. Attendees were invited to build their own design project with the method cards, and to nominate their own favorite tool by writing on a research wall. A selection of DOC method cards were arranged in a linear fashion around the walls of the exhibition space. The case study illustrated a project that DOC

has been involved in since 2009, with the City of Sydney Council. This case study outlined the design tools and methods used by DOC and the City of Sydney who have subsequently implemented new policy and projects.

4.1 Method cards exhibition – case study

The table below outlines the method cards that were used to illustrate the case study. This table also identifies roughly where in the frame creation process these tools were being used.

Table 1. DOC method cards – Kings Cross case study

Practice Stage	Method	Description	Precedent
Research	Hot spots	Explore patterns in recorded crime statistics. Identify spatial and temporal trends.	Claymore
Initiation	Power and the passion	Find a champion and creating an ongoing relationship based on common goals and values .	City of Sydney
Frame Creation	Tried and tested	Gather a record of past issues and how they have been approached.	Safer by Design trash can
	Conflicts and differences	Identify the problem everyone has trying to solve. Then set it aside. The solution does not lie there.	Kings Cross
	Who's who in the zoo	List all stakeholders and consider the broader context of what their interest is in the topic.	Copper Theft
	Take Photos	Plan ahead and produce a storyboard of shots.	Hostile vehicles
	Invite an expert	Identify experts from each stakeholder, go on-site with them to get their perspective.	Claymore
	Hot or not	Scan social media to see what people are saying.	Opera House
	Theme analysis	Analyze the results of the previous research and apply themed analysis tools to draw out themes.	Deep Dive
	Frame creation	Drawing out the themes create a new frame through which to view the problem	Kings Cross
Design Exploration	Get real	Scope out how new frame could be put in to place.	Safe Places
	Design exploration	With the stakeholders and content experts, explore specific designs to make show how the frame would be put in place.	Mt Druitt Town Centre Reserve
Handover	Visualize the concept	Sketch up the designs that make the frame to illustrate it.	Kings Cross 3D flythrough
Evaluation	Flag ship model	Implement trials or pilots of individual elements of the frame to test them.	City of Sydney Project Evaluations

The case study which illustrates the use of the DOC method cards is a project that started in the early days of DOC. Kings Cross is geographically small, densely populated, and is the most popular nightspot for Sydney-siders and visitors alike. Kings Cross is also the densest crime hotspot in Sydney with high levels of assault occurring on Friday and Saturday nights. The problem of violence had a deep history, and the City of Sydney had been working with various government and non-government stakeholders in an attempt to reduce crime in the area.

For reasons of brevity only a few of the method cards will be profiled. Hot Spots - The Crime Hotspot Map for Kings Cross shows a concentration of assaults along Darlinghurst road, and identifies the location of a recent murder. Temporal data allows DOC to identify the periods of the week where assaults occur more frequently. A rich understanding is through the combination of statistical analysis and experiencing the location first hand.



Figure 2 - DOC Method Cards Exhibition



Figure 3 - Crime Hotspot Maps (BOCSAR 2012)

Tried and Tested – It became evident that a paradox was halting progress in Kings Cross. The law-and-order problem they were trying to solve was virtually unsolvable without reverting to harsh countermeasures like shutting down the neighborhood. Efforts to reduce the problem had tended to focus on stricter conditions for businesses, greater police presence, and was accompanied by a general outcry from the public. It was evident that the solution didn't lie within trying to do better policing.

Who's Who in the Zoo – Main stakeholders were the City of Sydney and Police who deal with the problems at a policy and operational level week after week. The broader context was a group of agencies and groups like transport providers, hospitals and other emergency services, businesses, residents and partygoers.

Theme analysis - The dominant themes drawn out of the exploration were that the experience that partygoers were looking for an exciting night out, with live music, dancing, and other entertainment. They weren't out looking for trouble.

Frame Creation – DOC realized that if Kings Cross were treated as an event space the problems associated with large alcohol intake, and absence of infrastructure would be addressed. An event for 30,000 people does not come without effort after all.

Design Exploration - Initially developed by DOC students, and later adopted by the City of Sydney, the exploration generated concepts for guides/street wardens, portable urinals, free water, integrated transport, chill-out zones, and more.

Flag Ship Model – Trials have been implemented through the pilot of ‘Precinct Ambassadors’, pissoirs, and in a general approach to ‘treat Kings Cross like an event’ (OPEN Sydney Policy 2012).

The key aspect of this case study, and an aspect which has been adopted whole-heartedly by the City of Sydney, is to find new ways of looking at the difficult problems they are facing (Matthews, 2012). The initial DOC and City of Sydney Project occurred at the beginning of what transpired to be a process led by City of Sydney that would reshape the way they, and their partners deal with the late night economy. Matthews (2012) states that:

Before – We asked how do we fix alcohol related violence?

Now – We ask how can we transform our city at night?

(Matthews 2012)

A comprehensive research and policy design process has now been conducted by the City of Sydney, to explore in precise detail the workings of the late night economy. The OPEN Sydney policy (2012) aims to place nighttime-Sydney on par with other international cities of renown to night-owls and party-goers.

4.2 Research wall

Attendees of the DAB LAB exhibition launch, and the Design + Crime Conference 2012 were invited to record their favorite design/research methods on a research wall in the exhibition. The DAB LAB exhibition launch was a public event with about 30 attendees, while the Design + Crime Conference was an academic conference with more than 100 attendees.



Figure 4 - DOC Method Cards Research Wall

The gallery was also open to the public between 5 December and 20 December 2012. In this time 28 attendees recorded their name, occupation, and their own favorite design/research method. The results are listed below with names omitted.

The nominated favorite methods provide a rich and interesting collection. The author has categorized loosely to a loose framework of problem analysis, synthesis, and solution generation (Reitman, 1965, Simon, 1973). Problem analysis tools such as desktop research; Google, Wikipedia, online journals and surveys are listed. As well as in the context of fieldwork; taking pictures, participant observation, interviews, and immersion. Analysis methods such as PESTELO and situational crime prevention also add to a rich mix of analytical approaches. The notion of the reflective practitioner (Schon, 1983) is present; imagination, ‘my senses’, and synthesizing information. Solution generation is referenced through; prototyping and user profiling, scenario experiments and pressure-cookers, while the Concreter shows the importance of not taking things too seriously.

The data collected on the research wall gives a superficial glance in to the methods favored by a multi-disciplinary group, albeit a group attracted to the exhibition by the crime angle. While the author does not seek to represent the data as definitive, or anything other than a snapshot, it does perhaps provide an interesting insight in to the methods used in the crime prevention field.

Table 2. DAB LAB research wall

Occupation	Favorite method	Analysis/Synthesis/Generative
Assorted	My senses	Synthesis
Concreter	Ice Cream	Synthesis (taking time to reflect)
Editor	Interviews	Analysis
Criminologist	Qualitative methods and offender perspectives	Analysis/Synthesis
Designer	Pressure cooker	Generative
Lecturer	Participant observation	Analysis
Intelligence	PESTELO	Analysis
Crime prevention	Situational crime prevention	Analysis
Director	Internet	Analysis
Student	Taking pictures	Analysis
Designer	User testing	Analysis
Professor	Experimental study	Analysis/Synthesis
Research fellow	Animation	Generative
Professor	Immersion, oral history, interviews, pictures	Analysis/Synthesis
Research officer	Googling hypotheses	Analysis
Designer	Info graphics	Synthesis
Professor	Synthesizing information	Synthesis
Contractor	Wikipedia	Analysis
Designer	Experimental scenario and user profiling	Analysis/Synthesis
Lecturer	Experimental scenarios	Analysis/Synthesis
Postdoctoral fellow	Interviews	Analysis
Criminologist	Interviews and juicy quotes	Analysis/Synthesis
Interactive product designer	Rough prototyping	Generative
Roadie & Podcast editor	Imagination	Synthesis/Generative
CPTED	Web-based surveys	Analysis
Production manager	Word of mouth and personal experience	Synthesis
Researcher	Pressure cooker	Generative
Criminologist	Online journals	Analysis

5 DISCUSSION AND CONCLUSION

This paper seeks to add to the current conversation that is occurring in design research about the practices and methods that are used in design. The paper has presented a brief overview of the DOC Method Cards, illustrated them in a case study, and presented data collected from the public at a design methods exhibition.

The challenge ahead for the author is to develop a critical framework through which to view future research, and to design a more comprehensive data collection methodology. DOC has created a practice and is forging new relationships in taking on difficult challenges. The co-creation of new ways of taking on crime problems is part of the challenge ahead. This will provide new insights not just in to the outcomes of design processes, but the methods developed and used to take on these complex problems.

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ICED 13

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Preface by the Programme Chair

We welcome you to the proceedings of arguably the biggest conference on engineering design: 19th International Conference on Engineering Design (ICED13) held in Sungkyunkwan University, Seoul, Korea!

This proceedings is a compilation of the 342 peer-reviewed and accepted papers submitted to ICED13. The proceedings is published in different forms: a book of abstracts, a soft-copy of proceedings on a USB-based memory device and a hard-copy of proceedings, which is available via a print-on-demand supplier. All these different forms of proceedings are numbered against both Design Society and ISSN referencing to allow wider access, better referencing and improved citation in the near and distant future. All the accepted papers are divided among the following 9 themes: Design Processes; Design Theory and Research Methodology; Design Organisation and Management; Products, Services and Systems Design; Design for X, Design to X; Design Information and Knowledge; Human Behaviour in Design; Design Education; and Design Methods and Tools. The hard-copy of the proceedings is in turn divided into 9 volumes where each volume comprises papers from a theme. All the accepted papers are presented in podium or discussion sessions in the conference. It is important to make it explicit that all the accepted papers have successfully cleared the criteria for acceptance in ICED13. The division into podium and discussion sessions is solely based on grouping similar papers so as to allow relevant, connected, lively and stimulating presentations and discussions. For this year's conference we have introduced a number of novel schemes to reduce the bureaucratic load for authors and organisers and, it is hoped, to increase the quality of the conference. To name a few: (i) automatic production of the cover page of papers based on title of paper, details of authors, abstract and list of keywords in the Conference Management System, (ii) electronic acceptance of terms and conditions in copyrights, (iii) feedback of acceptance and quality of reviews to reviewers from authors, etc.

This proceedings is a consequence of dedicated efforts of many people, namely, the authors, the reviewers, the chairs and associate chairs of the various themes, and the members of the Programme Committee. The Programme Chair on behalf of Programme Committee would like to acknowledge the contributions of: (a) Authors for submitting papers, (b) Reviewers for providing timely comments and feedbacks to improve the quality of papers, (c) Chairs and Associate Chairs of themes for assisting in selection of reviewers, providing directions for improvements to papers with the status of major revisions, and helping in the final decisions of papers.

We hope that you enjoy the programme of ICED13 as much as we have enjoyed creating and organising it.



A handwritten signature in dark ink, appearing to read 'Udo Lindemann'.

Udo Lindemann
Programme Chair



A handwritten signature in dark ink, appearing to read 'Srinivasan V'.

Srinivasan V
Assistant Programme Chair

Preface by ICED13 Conference Chair

Welcome to the 19th International Conference on Engineering Design 2013 (ICED13), and its conference proceedings. The theme of ICED13, *Design for Harmonies*, is well reflected in the programme and papers of the conference. As design practice and research make progress, integration and incorporation of diverse viewpoints take more essential roles. ICED13 will make its mark in the history of ICED and the Design Society as an important cornerstone for harmonies in design.

Increasing numbers of presentations in topics like human behavior in design and product, service and systems design indicate that issues of harmonies of products and services and those of human-centered views and technology support are at the core of design research. With continued excellence in the topics of design methods and tools, design information and knowledge and design processes, strong research foundations of design have been confirmed in the programme. Presentations in design organisation and management, design for X, design to X, and design theory and research methodology also demonstrate the leadership of the Design Society community in these important issues. Design education is yet another important area where new needs and requirements appear as the roles of design become broader. As Seoul is the very first Asian city hosting ICED, more papers from Asian countries appear in ICED13. This reflects harmonies of East and West being strengthened in design research. ICED13 will make a good transition for drawing more such harmonies.

In addition to a technical programme of keynote, podium and discussion sessions, ICED13 has organized a few special events such as the Young Members Event. Ten selected presentations by young designers and design researchers will address the Future of Design. This event is open to the (young) public so that diverse harmonies can be achieved by the attendees. With opening and closing ceremonies and receptions as well as a conference banquet, diverse opportunities for cultural harmonies are prepared. For example, Korean traditional culture experiences are available for conference attendees and accompanying guests together with old Korean traditional buildings in order to draw harmonies from the Old and the New. The optional Gangnam-Style tour will introduce modern Korean culture as featured in the world hit music video.

We hope you enjoy ICED 13 and have the fun and excitement of Design for Harmonies.

A stylized, handwritten signature in dark ink.

Yong Se Kim
Conference Chair

A stylized, handwritten signature in dark ink.

Sang Won Lee
Assistant Conference Chair

Preface by the Design Society President

The 2013 International Conference on Engineering Design (ICED) will be the nineteenth held since the conference series was inaugurated in 1981. It will also be the sixth held under the auspices of the Design Society, an international society founded in 2001 to develop an understanding of all aspects of design. The previous five conferences have been in Stockholm, Melbourne, Paris, Stanford (California) and Copenhagen, and by holding the conference in Asia for the first time it is surely established as a truly world-wide event. The 2013 conference continues the tradition of holding the conference in an exciting location with a vibrant design research community and for which design is important to local industry and commerce. Seoul is exceptional in this regard, the dynamic heart of the world's second largest metropolis whose success is built on great design and engineering.

ICED13 also continues the format, established in 2009 and continued in 2011, of a conference programme made up of plenary sessions, podium presentations, discussion sessions with focused debate and workshops led by the Design Society's Special Interest Groups. We hope that this varied programme, combined with extensive opportunities for networking, will provide an exciting opportunity for researchers and practitioners to learn about the latest developments in design research and practice.

Organising an international conference takes an enormous amount of work, and I would like to express the thanks of the Society to the great team that has worked over many months to make the Conference a success. Especially I would like to thank Yong Se Kim, Sang Won Lee and colleagues at Sungkyunkwan University for their great work in the Organising Committee, and Udo Lindemann, Srinivasan V and the Programme Committee for bringing together such an excellent programme. Of course, their work would be in vain without the fantastic contributions of the authors, reviewers, theme chairs and session chairs, and the thanks of the Society are due to all of them.



A handwritten signature in dark ink, appearing to read 'Chris McMahon'.

Chris McMahon
Design Society President

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